

What is claimed is:

1. A method for removal of a barrier film on a semiconductor wafer by polishing with a polishing pad and a polishing fluid, the polishing fluid comprising abrasive particles in the range of 0.1% to 5% by weight and an organic acid or mixture thereof in the range of 0.5-10% by weight in an aqueous solution at basic pH with no addition of an oxidizing agent.
2. A method as in claim 1, wherein the organic acid is selected from the group consisting of carboxylic acids, hydrocarboxylic acids containing a hydroxyl group, and amino acids.
3. A method as in claim 2, wherein the organic acid is selected from the group consisting of citric acid, maleic acid, formic acid, acetic acid, propionic acid, butyric acid, valeric acid, acrylic acid, lactic acid, succinic acid, malic acid, malonic acid, succinic acid, tartaric acid, phthalic acid, fumaric acid, lactic acid (alpha-hydroxypropionic acid or beta-hydroxypropionic acid), pimelic acid, adipic acid, glutaric acid, oxalic acid, salicylic acid, glycolic acid, tricarballic acid, and benzoic acid.
4. A method as in claim 2, wherein the amino acid is selected from the group consisting of glutamic acid, glutamic acid hydrochloride, sodium glutamate monohydrate, glutamine, glutathione, glycylglycine, alanine, beta.-alanine, gamma-aminobutyric acid, epsilon-aminocaproic acid, lysine, lysine hydrochloride, lysine dihydrochloride, lysine picrate, histidine, histidine hydrochloride, histidine dihydrochloride, aspartic acid, aspartic acid monohydrate, potassium aspartate, potassium aspartate trihydrate, tryptophan, threonine, glycine, cystine, cysteine, cysteine hydrochloride monohydrate, oxyproline, isoleucine, leucine, methionine, ornithine hydrochloride, phenylalanine, phenylglycine, proline, serine, tyrosine, valine, and a mixture of these amino acids.
5. A method as in claim 1, wherein the said abrasive is silicon dioxide.
6. A method as in claim 3, wherein the organic acid is citric acid.
7. A method as in claim 4, wherein the amino acid is glutamic acid.

8. A method as in claim 1 wherein a metal corrosion inhibitor is added to said polishing solution.
9. A method as in claim 1 wherein the fluid pH is in the range from pH 7 to pH 11.
10. A polishing fluid for removal of a barrier film on a semiconductor wafer by polishing with a polishing pad and the polishing fluid wherein the polishing fluid comprises abrasive particles in the range of 0.1% to 5% by weight and an organic acid or mixture thereof in the range of 0.5-10% by weight in an aqueous solution at basic pH with no addition of an oxidizing agent.